Reference Document for Developing Option Packages to Address Regional Transmission Problems and Opportunities

The materials in this document have been prepared to assist RRG participants in preparing complete and cohesive option packages to address regional transmission problems and opportunities. The issues identified in recent RRG meetings (August and September 2003) have been grouped for consideration of possible solutions. Extracts from the sections of the problems and opportunities list[1] are provided for each issue in the group.

This following is a general list of observations and assumptions that relate to this reference document.

Observations and Assumptions

1. Consensus Limitations. Any statement of a consensus that a regional problem or opportunity exists is not an indication that a particular transmission provider agrees that the problem exists on its own system or has a duty or responsibility under tariff, law, or regulation to correct the problem. In addition, a consensus that a problem warrants action does not signify what that action might be, if any, how that action might be taken, or what entity might be responsible for implementing the action.

2. Regional Scope. For the purpose of these discussions, the region includes the area served by the RTO West filing utilities, to include the states and provinces of, British Columbia, Washington, Oregon, Idaho, Nevada, Montana, Wyoming, and Utah.

3. "Best Model" Contributions. All participants are encouraged to make suggestions for improving a given solution or package of solutions. Such contributions to improve the quality of a given package do not necessarily indicate support for or agreement to that package, but rather a desire to assist decision making by building each package as the "best model" for a given approach.

4. Questions for Solutions. (a) How does each alternative solution address concerns? (b) Is there linkage to other problems? (c) How would the solution be implemented? (d) Is an organized entity needed? (e) Is an independent entity needed?

5. Questions for Packages. (a) Which problems are addressed by the package? (b) Which problems are not addressed (or deferred) by the package? (c) What is the order and timing of steps to be taken? (d) What organizational structure is required? (e) What regulatory filing/approvals are required?

[1] "Regional Representatives Group Regional Transmission Problems and Opportunities List Organized by General Categories - Update and Accompanying Notes," dated August 14, 2003.

Group 1 – Planning and Expansion Issues

1.a Internal Planning

(P&O Section A.1) Underutilized capacity:

- Failure to use existing capacity which may lead to costly alternatives.

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:

- Lack of information and incentives (or poor incentives) to guide location of new resources and transmission.
- Incentives and cost recovery for system expansion are uncertain.
- Difficulty for recipients in understanding information provided.

(P&O Section C.1) Adequacy standards and infrastructure:

- Meeting adequacy standards must consider all options – generation, transmission, demand-side measures.
- Clarification of states' role in transmission and generation adequacy.
- Need to address transmission capacity reservations for future load growth.
- "Tightening" of system due to unintended loss of margin because of economic pressure. Challenge is to secure sufficient investment to meet growing needs while continuing to meet reliability standards.
- There is an opportunity to make investments for reliability on a more coordinated, regional basis.

1.b West-wide Planning

(P&O Section C.6) Interregional (seams) planning issues.

1.c System Expansion

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:

- Lack of information and incentives (or poor incentives) to guide location of new resources and transmission.
- Incentives and cost recovery for system expansion are uncertain.
- Pancaking affects on wholesale energy markets include – limits diversity of options available to buyers, limits ability to complete otherwise economic transactions, sub-optimal resource development and difficulty in long-term power contracting.

(P&O Section C.1) Adequacy standards and infrastructure:

- Incentives have changed from past when expansion conferred strategic advantage, resulting in reduced incentive to use scarce capital for expansion with generalized benefits like more economic energy trade.

(P&O Section C.2) Infrastructure investment:

- Need sufficient, timely investment to adequately serve load, provide capacity to new users and alleviate congestion.
- Currently have multiple planning process and limited construction.
- Lack of access capital leads to over-use of short-term measures which contributes to uncertain cost recovery.
- Need better information and better use of existing information to help make better decisions.

(P&O Section C.3) Cost recovery:

- Uncertainty over (a) regulatory support for recovery and (b) method of recovery which is increased by multi-jurisdictional environment.
- Need to align payment of cost with beneficiaries of system improvements.

Regional Needs and Desired Characteristics

- A regional transmission plan is needed that:
  - Gives information about current use and problems of the system;
  - Looks forward to various possible future conditions; and
  - Lays out possible options (transmission, generation, DSM, etc.) and their consequences, as opposed to prescriptive "least cost plan."
- The planning process needs the ability to identify beneficiaries and the potential parties responsible for implementation.

- Transparency of information is needed by stakeholders.
- Some level of independence and objectivity is needed.
- The planning process must be open and include all stakeholders.
- The planning process will inform public policy development across the region.
- Method for implementing plans should be identified, including describing a reasonable means of cost recovery.

Group 2 – Use of Existing System Issues

2.a Short-Term Access

(P&O Section A.1) Underutilized capacity:
- Not everyone is able to obtain desired service.
- Failure to use existing capacity, which may lead to costly alternatives.
- Current rules contribute to problem.
- Opportunity to make more capacity available.

(P&O Section A.3) Access and Service Issues:
- Lack mechanism for service and study coordination between regional providers.

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:
- No correlation between short-term charges (to recover embedded costs) and marginal cost of system use.
- Transactions must be arranged with multiple providers.
- Pancaking affects on wholesale energy markets include – limits diversity of options available to buyers, limits ability to complete otherwise economic transactions, sub-optimal resource development and difficulty in long-term power contracting.

2.b ATC Calculation

(P&O Section A.1) Underutilized capacity:
- Current rules contribute to problem.

2.c Scheduling

(P&O Section A.2) Market Power Issues:
- Seams exist today between NW and CAISO.

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:
- No correlation between short-term charges to recover embedded costs and marginal cost of system use that may be higher or lower than the usage charge.
- When system overloaded, current tools (cutting schedules) cannot be relied upon to manage congestion.
- Contract path schedules do not correspond to actual energy flows.
- Users have no indication whether they are using a congestion portion of the transmission system.
- Inefficient dispatch may result from inability of users to know the congestion value of their transmission rights.
- Current ancillary service market arrangements don't deal with transmission capacity implications.

(P&O Section B.1) Underlying Problem:
- Lack a good mechanism to determine when problems exist and make decisions.

(P&O Section B.2) Operational control issues:
- Poor tools for managing system overloads and conflicts between different operators' curtailment procedures.
- Lack of process for financial settlement of redispatch use to address reliability.

2.d Congestion Management & System Control

(P&O Section A.1) Underutilized capacity:
- Not everyone is able to obtain desired service.

2.e Transmission Rights

Proposed grouping of issues:

- Short-term access for existing customers
- Scheduling
- Congestion Management
- Pricing (Incremental)
- Rights/Contracts
- [Major linkage to expansion – information (planning) and incentives]
- [Another linkage – seams]

Three basic variants for this grouping of issues:

(1) RTO West Reloaded – lead is filing utilities with other interested parties

- Independent entity controls access and scheduling
- Accept all schedules; flow-based system assessment
- Congestion management by reverse schedules, redispatch
- Voluntary, bid-based locational approach
- Real-time ancillary services markets support balanced schedules
- Pricing – marginal congestion relief cost
- FTOs, fungible, liquid, convert existing contract rights

(2) "Enhanced" Independent Scheduler – lead is Lon Peters

- Independent entity controls access and scheduling
- Contract path
- Existing contracts and ATC ownership
- ATC calculated according to current practices
  - Variant – independent entity calculates ATC
- Pricing – no incremental pricing
- Other features to be identified in written description

(3) "Maximize ATC" – lead is BPA

- Make use of netting and diversity
- Need for an independent entity to administer
- Seek to increase use of underutilitized paths
- Independent entity seeks to foster voluntary markets in rights and redispatch
- Explore new transmission service products (*e.g.,* "semi-firm")
- One-stop shopping

Group 3 – Long-Term Access

[*September 3 and 4 RRG meeting notes shown in italics*]

- Suggestion to distinguish process issues from results

3.a Physical Interconnection

(P&O Section A.1) Underutilized capacity:

- Not everyone is able to obtain desired service.
- Failure to use existing capacity which may lead to costly alternatives.
- Capacity not available in all hours leads to request denial although capacity available in most hours.

- some of these problems are currently being addressed, for example by changes in business practices (e.g., BPA's "partial firm"), but some see this as only a partial, interim solution

- some suggest that we look at structural changes that would facilitate providing service to all those who desire it, and then evaluate whether it is cost-effective

- others believe we should not assume structural changes are not the only possible solutions, and that other approaches working from current structures should also be explored

- reminder that the legal standard is "undue" discrimination

- ***There is general agreement that we need improved (and uniform) ways to calculate ATC that also provide greater transparency; also, coordination in interconnection studies would be a good thing.***

- Another issue: who makes determinations that require judgment? If independence in these areas could be implemented at low cost, would there be objections?

- Would this be a good area to explore what can be done through phasing?

(P&O Section A.3) Access and Service Issues:

- "Getting on the highway".
- Interconnection process cumbersome.
- Generator queuing can be "nightmare".
- Renewables need/want easier interconnect and use process.
- Lack mechanism for service and study coordination between regional providers (now we evaluate on a system-by-system basis, rather than a "big picture" view).

- desire for an impartial entity to deal with interconnection requests and requests for new transmission service

- would also like to have a single forum for interconnection requests

- desire for greater transparency (e.g., calculation of ATC)

- desire for better siting outcomes

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:

- Transactions must be arranged with multiple providers.
- Pancaking effects on wholesale energy markets include – limits diversity of options available to buyers, limits ability to complete otherwise economic transactions, sub-optimal resource development and difficulty in long-term power contracting.

3.b Business Relationship

(P&O Section A.3) Access and Service Issues:

- "Rules of the road".
- Generation integration:
  - Not all generators have same terms and conditions of service.
  - Different application of penalties.
  - Inequitable treatment concerning RAS.
  - QF/Cogen problems not the same as IPPs.
- Load integration
  - Asymmetric load obligations by type of supplier.
  - Different sources of obligations to load.
  - Inequitable treatment concerning RAS.
  - Inequitable service between unbundled retail and bundled retail customers.
  - Different penalties for similar actions.
  - Access to wholesale utility loads (desire for "one-stop shopping")
    - *Concern about integrity of distribution system and its ability to serve local loads*

Process suggestion – set up a group (including states) to talk about facilities issues in a structured manner (possibly separately addressing load versus generation access)

Regional Needs and Desired Characteristics

- *fair (not unduly discriminatory) process that minimizes transaction costs*

- *transparency, liquidity, fairness, uniformity*
- *improved processes for making use of existing system*
- *any new process or approach should preserve pre-existing contract rights (including ability of utilities to serve their native load and for transmission providers to provide service to load-serving entities)*
- *system-wide look at interconnection studies, transmission service requests, and queuing*
- *[need for independent oversight or for greater objectivity?] [or is this a means to achieve a desired objective]*
- *we need improved (and uniform) ways to calculate ATC that also provides greater transparency (and improve ability to provide long-term service); also, coordination in interconnection studies would be a good thing.*
- *need for flexible products*
- *jurisdictional clarification and coordination*
- *clear resolution of contract path/actual flows issue*
- *[ATC calculation process that reflects system-wide capacity]*

Possible Solutions

1. *Possibly four progressive elements?*
- *Agreement among transmission owners to increase transparency, uniformity, liquidity, and objectivity (uniform products and standards)*
- *A process to produce independent results*
- *Independent entity to administer agreement among transmission owners (provides a single point of contact for customers)*
- *RTO West Stage 2 Proposal or some other single independent transmission provider*

Group 4 – Control Area Function Issues

4.a Short-Term Reliability

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:
- When system overloaded, current tools (cutting schedules) cannot be relied upon to manage congestion.
- Contract path schedules do not correspond to actual energy flows.

(P&O Section B.1) Underlying Problem:
- Lack a good mechanism to determine when problems exist and make decisions.
- As operating margins decline, need more effective, quick-response operating tools.
- Outage risk must be balanced against economic cost of avoiding those risks.
- Must measure the degree of system use permitted without unreasonable exposure to system failure.

(P&O Section B.2) Operational control issues:
- Poor tools for managing system overloads and conflicts between different operators' curtailment procedures.
- Need more efficient method for managing loop flow.
- Fragmented operations (i.e. multiple control areas) produce a lack of system-wide visibility.
- Security Coordinator can't see all data to monitor due to limitations of contractual relationships.
- Lack of process for financial settlement of redispatch use to address reliability.
- Generation response to curtailments is unpredictable due to weak linkage between schedule changes and actual generation changes.

(P&O Section B.3) Use of net v. gross load:
- Determination of load-serving entity's responsibility for load "behind the meter".

(P&O Section B.4) Setting reliability standards without adequate consideration of cost consequences:

- Consider benefit gained, unintended consequences, user preferences and who should bear implementation burden.

(P&O Section B.5) Over-reliance on short term and non-firm use of system.

4.b Ancillary Services

(P&O Section A.2) Market power issues:

- Market power an issue for developing competitive ancillary service market.

(P&O Section A.5) Ancillary services:

- Workable markets for im balance energy and ancillary markets (frequency regulation, load following, operating reserves) need by both buyers and sellers of energy.
- Not all parties have adequate access to such ancillary service market(s).
- Some suppliers with technical ability to provide ancillary services are not permitted to do so under current tariff and market structure.
- Ancillary service market needed at or near load centers (i.e. local availability).
- Current ancillary service market arrangements don't deal with transmission capacity implications.
- There is an opportunity to use the resource more efficiently that is currently set aside by control areas to follow load.
- Opportunities to use contingency reserve resources more efficiently (or cost effectively).

4.c Losses

(P&O Section A.6) Losses; loss methodolgy:

- Current loss methods for assigning and collecting system losses to transactions are not aligned with the actual loss effects created by those transactions. This mismatch between assigned losses and loss effects involves both the quantity assigned and the value of the loss energy supplied.

[*September 3 and 4 RRG meeting notes shown in italics*]

Regional Needs and Desired Characteristics

- *We need a tool for managing short-term system overloads that is (a) more effective - provides more direct linkage to altering dispatch in response to problems and (b) more efficient*
  - *must include transparency and independence; all comparable facilities treated equitably*
- *Broader (or regional) ancillary services market*
  - *includes manner of addressing transmission effects*
  - *easier settlement systems for ancillary services*
  - *takes advantage of opportunities to make more efficient use of ancillary services resources*
  - *(note that there are some things that may be called ancillary services that may not be able to be provided through market mechanisms, while others can be)*
- *Enhanced oversight through security coordination function – timeframe (e.g. day ahead) and completeness of information about system*
- *Regional loss methodology that practically balances*
  - *true economic/physical losses*
  - *facilitating trade*
  - *administrative ease*
  - *maintaining reliability*

Group 5 – Cost Recovery Issues (Including Rate Pancaking)

5.a Embedded Cost of Existing System

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:

- No correlation between short-term charges to recover embedded costs and marginal cost of system use that may be higher or lower than the usage charge.

5.b Rate Pancaking

(P&O Section A.4) Information, incentives and hurdles affecting infrastructure development:

- When multiple transmission providers must be used, fixed-cost charges are pancaked without regard to costs imposed on system.
- Pancaking effects on wholesale energy markets include – limits diversity of options available to buyers, limits ability to complete otherwise economic transactions, sub-optimal resource development and difficulty in long-term power contracting.

[*September 3 and 4 RRG meeting notes shown in italics*]

A view of key questions: what is the economic harm (inefficiency) of having pancaked rates and what is the economic benefit to eliminate them?

Another view of a key question: would a change in rate design benefit existing wholesale power markets? (answers to this questions should explain either why the current structure is best or why a change would serve wholesale power markets better)

There is a potential for substantial costs shifts (who pays which costs) from changing rate design to eliminate pancaked rates.

Questions about whether we want to make any changes to rate design that would increase incentives for very long-distance power transactions (reliability concerns)

Stage 2 company rate proposal was designed to minimize cost shifts and still left BPA customers to work with BPA on how BPA would recover its costs from its customers

If the system is workable for our current needs, it will not necessarily be workable for our future needs (and we need to know when and where the system is worth expanding)

There are some low-cost resources that are held out of the market (cannot compete) because of pancaked rates

If we are going to have a regional transmission system, it makes sense to have a regional rate, not a "medieval" system

The RTO West Stage 2 proposal does contemplate a shift from volumetric charges for embedded cost recovery to loads paying a single fee for access to the entire system (with potential for separate congestion charges that could be covered by pre-existing or newly issued rights)

Over the past 10 years or so, there has been very little construction of new transmission, and one of the reasons is our current balkanized recovery system

Note – would it be helpful to distinguish between pricing for short-term transactions (day-ahead, within-day) versus pricing for long-term transactions?

Also – we should be careful not to mix up congestion charges with pancaked transmission rates (pancaked rates relate to recovery of embedded system costs)

Whether rates are pancaked or not could have a significant effect on where new generators get located and fuel choices

Suggestion: address rate pancaking in the context of working on cost recovery issues

Regional Needs and Desired Characteristics

- *Potential goals:*
  - *For the short term:*
    - *improve dispatch in the short run*

        - *align short-term prices with short-term costs*
        - *move away from multiple volumetric charges for embedded cost recovery*
    - *For the long term:*
        - *avoid inappropriate signals for new infrastructure investment due to embedded cost rate pancaking*
        - *avoid creating a bias with respect to particular fuel or resource choices*
        - *align long-term prices with long-term costs*
        - *improve the efficiency of the system going forward*
- *Any solution would need to take into account (and balance):*
    - *cost shifts*
    - *administrative ease*
    - *supporting reliability*
    - *opportunity costs associated with not taking action, as well as the costs incurred to implement a particular solution*
- *There should be a mechanism to deal with congestion charges separately from embedded cost recovery*

Group 6 – Market Power Issues

6.a Market Monitoring

(P&O Section A.2) Market power issues:

- Seams exist today between NW and CAISO.
- Opportunities exist for exercise of market power within Western Interconnection.
- Lack of consistent rules and price transparency.
- While more apparent in stressed conditions, exercise of market power may be occurring now.
- Market power an issue for developing competitive ancillary service market.
- No mechanism to fix design and market structure issues

6.b Market Power Mitigation

(P&O Section A.2) Market power issues:

- Need ability to detect and correct abuses.
- Need comprehensive view of all related products
- Need proactive not after-the-fact approach.
- Need equitable in-region mitigation measures.
- Must address jurisdictional differences.
- Independent party needed.

Group 7 – "Ballpark" Costs, Benefits and Timing Issues

7.a Expected Costs

7.b Benefits (Return on Investment)

7.c Order of Steps

7.d Time to Implement